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Cat. No. 12-2108

OWNER'S MANUAL

Please read before using this equipment.

In-Dash High-Power AM/FM Stereo Cassette with Auto-Reverse

FEATURES

Your Optimus In-Dash High-Power AM/FM Stereo Cassette with Auto-Reverse has many practical, easy-to-use features, and you can install it in almost any vehicle. The stereo's anti-theft control panel lets you quickly remove it, making the stereo inoperative.

The auto-reverse cassette deck, memory tuning, and seek and scan tuning all help make your stereo's operation simple and quick so you can drive safely.

This stereo's features include:

Anti-Theft Control Panel — lets you quickly remove and store the stereo's control panel in the supplied carry case. This discourages theft because the stereo cannot operate without the control panel.

Continuous Auto-Reverse — allows continuous play of both sides of a cassette tape.

Locking Fast-Forward/Rewind — lets you quickly move the tape to the beginning or the end without holding down either button.

Advanced FM Optimizer Circuitry — automatically adjusts the tuner's stereo separation and high-frequency response to give you the best possible sound, regardless of the signal level.

Automatic FM Tuning Adjustment — automatically changes FM reception on weak stations from stereo to mono, to improve reception of those stations.

Lighted LCD Display with Clock — lets you easily see the clock/radio/cassette deck's current functions.

Band Button — lets you select the AM or FM band with the push of a button.

Seek Tuning — searches forward to the next strong station in the selected band.

Automatic Seek Sensitivity — adjusts your stereo so, the first time it searches a band, it stops only on strong local stations; the next time it searches, it also stops on weaker, distant stations.

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Manual/Automatic Memory Programming — lets you manually or automatically store 12 AM and 18 FM stations into memory so you can quickly tune to those stations.

Memory Scan Tuning — scans all stations in an AM or FM memory group, playing for 5 seconds on each station.

Metal/CrO^2 Tape Selector — takes advantage of the improved sound quality in metal or CrO^2 tapes.

Bass, Treble, Fader, and Balance Controls — let you adjust high and low sounds and the balance between the left and right and front and rear speakers, so you can tailor the sound to suit your preferences.

Digitally Synthesized Circuitry — gives you precise tuning and drift-free reception.

Display Color Selector — lets you change the display's color to amber or green.

Built-in Noise Suppression Choke — reduces the noise caused by your vehicle's electrical system.

For your records, we recommend you record your stereo's serial number below. The serial number is on the top of the stereo.

Serial Number: _____

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INSTALLATION

BEFORE YOU BEGIN THE INSTALLATION

Before you install your stereo, read all the instructions in the "Installation" section of this manual. You should be able to answer all of these questions about your vehicle's electrical and sound systems.

- Which terminal in my vehicle's fuse box is for accessories?
- How do I connect a wire to the fuse box?
- Which of the stereo's wires is the power wire?
- Which stereo wires are speaker outputs?

Also, be aware that installation in your vehicle might require cutting or modifying your vehicle.

Before you mount the stereo, test the connections by temporarily connecting the power wires, speakers, and antenna as described in "Making the Connections" and install the control panel as described in "Installing the Control Panel." If you plan to use an adapter harness to connect the stereo, see "Using an Adapter Harness."

Preparing the Mounting Area

Before you mount the stereo, read through this "Installation" section to make sure you have all the necessary materials. Then confirm that the stereo fits your vehicle's mounting area.

Caution: Be careful to avoid obstructions behind the mounting surface.

Notes:

- This autosound stereo system is a DIN-E size unit that requires a $2^1/_8$ inches (54 mm) high by $7^1/_2$ inches (190 mm) wide by $8^1/_2$ inches (216 mm) deep mounting area.
- If the mounting area is too large, you might be able to mount the stereo with an in-dash installation kit, available at your local Radio Shack store. Follow the installation kit's instructions to mount the stereo.

Routing Speaker Wire

If you install speakers, avoid routing the speaker wires near moving parts or sharp edges. You can usually route it along the wiring channel beneath the vehicle's door facings by carefully removing the molding that holds the carpet in place. After you route the speaker wires, replace the molding.

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MAKING THE CONNECTIONS

The supplied 14-wire harness includes all the lead wires you need to connect the stereo to ground, power, optional components, and speakers. You might need additional wire, depending on your individual auto sound system, to complete the connections. Your local Radio Shack store carries a full line of wire and wiring accessories.

Important: Do not cut these wires. If you cut any wire, you cannot obtain a refund or exchange on this product. Radio Shack will provide warranty service if you cut a wire and find the product is defective.

Cautions:

- For added safety and to protect your stereo, disconnect the cable from your vehicle battery's negative (—) terminal before you begin.
- You *must* connect the ground, primary, and memory backup wires first, then test these connections before you make any other connections. If you do not make the connections in the order shown, damage to the stereo is possible if any wire connections are made incorrectly.

Using an Adapter Harness

If you are replacing an existing stereo or if your vehicle has been factory-wired for autosound components, you might be able to use an adapter harness to connect the power and speakers. Your local Radio Shack store sells adapter harnesses for most vehicles.

Follow the directions that come with the adapter harness to connect power and the speakers.

Connecting Ground, Power, and Optional Components

Follow these steps to connect the 14-wire harness to ground, primary and memory backup power, and optional components.

1. Disconnect the cable from your vehicle battery's negative (—) terminal.
2. Connect the black ground wire to a chassis ground, such as a metal screw attached to a metal part of the vehicle's frame. Be sure that the screw is not insulated from the chassis by a plastic part.

3. Connect the red power wire (with in-line fuse holder) to a point in your vehicle's fuse block that has power only when you turn the vehicle's key to either the accessory (ACC) or ON position.

   This connection powers the stereo and turns it on when you turn on the ignition or turn the key to ACC, and turns off the stereo when you turn off the ignition. This prevents your vehicle's battery from being drained if you leave the stereo on when you turn off the ignition.

4. Connect the yellow power/memory wire (with in-line fuse holder) to your vehicle battery's positive (+) terminal or to a point in your vehicle's fuse block that provides a continuous source of 12 volts.

   This connection provides continuous power for the stereo's clock and tuner memory when the ignition is turned off.

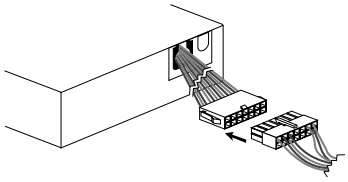
5. Connect the blue/white wire to any optional component, designed to run from a switched source, that you want to turn on and off when you turn the stereo on and off (such as an equalizer/booster).

   This wire does not provide power to the component. It simply turns it on or off. If you do not use this wire, secure it with a wire tie and do not let it touch metal.

Testing the Power Connections

Temporarily connect:

- The 14-wire harness into the stereo's 14-pin wiring socket



- Your vehicle battery's negative (—) cable

Install the stereo's anti-theft control panel (see "Installing the Control Panel"). Then turn on your vehicle's ignition. Verify that everything works properly (the stereo works properly when the display lights and the frequency or time display appears).

If the stereo does not work, ***immediately turn off your vehicle's ignition, then unplug the 14-wire harness and your vehicle battery's negative (—) cable.*** Recheck your connections.

If the stereo works properly, disconnect:

- The 14-wire harness from the stereo's 14-pin wiring socket
- Your vehicle battery's negative (—) cable

Then proceed with the installation.

CONNECTING SPEAKERS

You can connect one or two pairs of speakers to the stereo.

Cautions:

- Be sure your speakers can handle 28 watts of power (14 watts per channel). Each speaker must have an impedance of at least 4 ohms. Your local Radio Shack store carries a full line of speakers.
- You must connect a separate wire to each speaker terminal as described in the following sections. Do not use a common wire or chassis ground for any speaker connection.

Connecting One Pair of Speakers

If you are using only one pair of speakers, rotate **FADER** to its center position until you feel it click and the tab on **FADER** points to the left.

Then follow these steps to connect the 14-wire harness to the speakers.

1. Connect the gray wire to the right speaker's positive terminal. This terminal is usually marked with a plus sign (+) or red mark.
2. Connect the violet/black wire to the right speaker's negative terminal. This terminal might be marked with a minus sign (—) or it might not be marked at all.
3. Connect the white wire to the left speaker's positive terminal.
4. Connect the green/black wire to the left speaker's negative terminal.

Connecting Two Pairs of Speakers

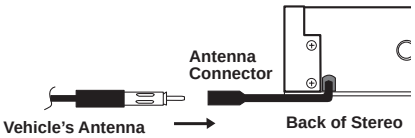
If you are using both front and rear speakers, follow these steps to connect the 14-wire harness to the speakers.

1. Connect the gray wire to the right front speaker's positive terminal. This terminal is usually marked with a plus sign (+) or red mark.
2. Connect the gray/black wire to the right front speaker's negative terminal. This terminal might be marked with a minus sign (—) or it might not be marked at all.

3. Connect the white wire to the left front speaker's positive terminal.
4. Connect the white/black wire to the left front speaker's negative terminal.
5. Connect the violet wire to the right rear speaker's positive terminal.
6. Connect the violet/black wire to the right rear speaker's negative terminal.
7. Connect the green wire to the left rear speaker's positive terminal.
8. Connect the green/black wire to the left rear speaker's negative terminal.

CONNECTING THE ANTENNA

Connect the vehicle's antenna cable to the stereo's large, black antenna jack.



TESTING THE INSTALLATION

Caution: Make sure you have securely made all connections before continuing with the installation.

Plug the 14-wire harness into the 14-pin wiring socket, then reconnect the cable to the vehicle battery's negative terminal.

Turn on your vehicle's ignition and test the stereo.

If the stereo does not work, ***immediately turn off your vehicle's ignition, then disconnect the 14-pin wiring harness from the stereo's 14-pin wiring socket and your vehicle battery's negative (–) terminal.*** Recheck your connections.

After you test the stereo and verify that everything works, make sure the connections are correctly marked or identified. Then follow the instructions in "Mounting the Stereo."

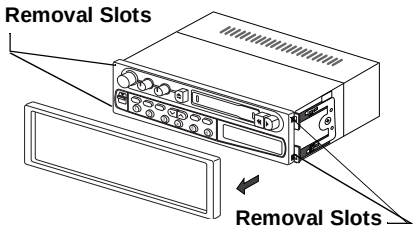
Note: The 14-pin wiring harness has the following labels.

GROUND (–)	CLOCK MEMORY
AMP REMOTE TURN ON 500mA MAX	POWER LEAD (B+)
FRONT RIGHT (+)	FRONT RIGHT (–)
FRONT LEFT (+)	FRONT LEFT (–)
REAR RIGHT (+)	REAR RIGHT (–)
REAR LEFT (+)	REAR LEFT (–)

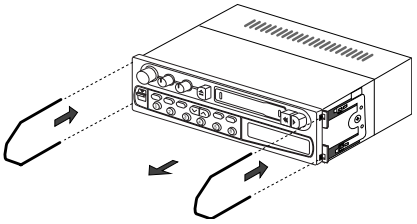
MOUNTING THE STEREO

Be sure you test all connections first, then follow these steps to mount the stereo.

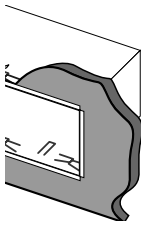
1. Disconnect the cable from the vehicle battery's negative (—) terminal.
2. Disconnect the wire harness and the antenna.
3. Carefully remove the trim plate from the front panel to expose the removal slots at the left and right sides of the stereo.



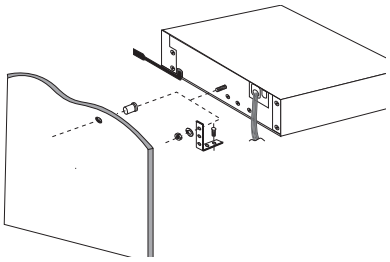
4. Insert both of the supplied keys into the slots at the left and right sides of the stereo, and slide the sleeve off of the stereo.



5. Insert the sleeve into the dash. Then secure the sleeve to the dash by bending out all appropriate tabs with a screwdriver. Bend out all the side tabs.



6. Reconnect the wire harness and the antenna.
7. Re-attach the trim plate.
8. Slide the stereo into the sleeve until it locks into place.
9. To further secure the stereo, remove the rubber cap from the bolt on the back of the stereo, then use the supplied hardware to attach one end of the supplied metal strap to the bolt.

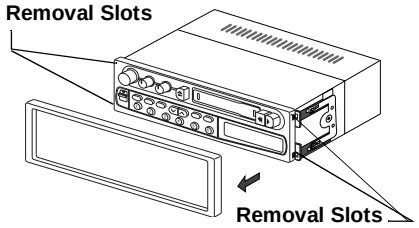


10. If necessary, bend the metal strap to fit your vehicle's mounting area. Then attach the other end of the strap to a solid metal part of the vehicle. This strap also helps ensure proper electrical grounding of the stereo.

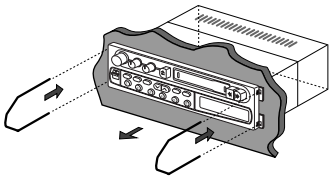
11. Reconnect the cable to the vehicle battery's negative (—) terminal.

REMOVING THE STEREO FROM THE DASH

1. Disconnect the cable from the vehicle battery's negative (—) terminal.
2. If necessary, remove the metal strap attached to the back of the stereo.
3. Carefully remove the trim plate from the front panel to expose the removal slots at the left and right sides of the stereo.



4. Insert both of the supplied keys into the slots at the left and right sides of the stereo, and carefully slide the stereo out of the dash.



5. Re-attach the trim plate.
6. Disconnect the wire harness and the antenna.
7. Reconnect the cable to the vehicle battery's negative (—) terminal.

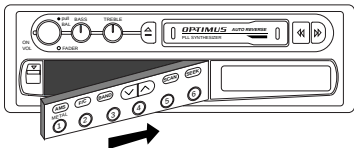
USING THE CONTROL PANEL

The stereo's anti-theft control panel must be in place for the stereo to operate. When you remove it, the stereo does not work. This is a simple, but effective security measure.

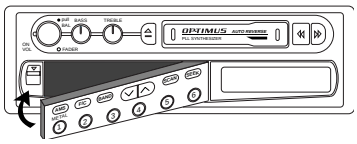
Note: Any stored stations remain in memory when the control panel is removed.

INSTALLING THE CONTROL PANEL

1. Insert the right edge of the control panel into the right edge of the recess. Make sure the tab in the recess fills the slot in the edge of the control panel.

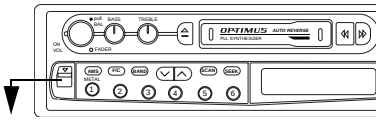


2. Gently push the left edge of the control panel into the recess until you hear a click.



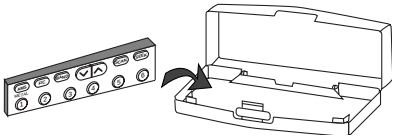
REMOVING THE CONTROL PANEL

1. Slide ▽ on the left side of the stereo down.



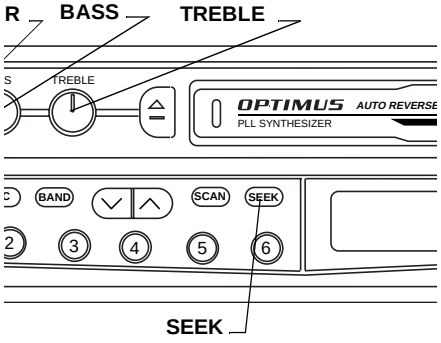
2. Grasp the control panel on the left side and pull it out to remove it.

3. Store the control panel in the supplied carry case.



BASIC OPERATION

ADJUSTING THE CONTROLS



When you listen to your stereo, you can adjust the following controls to suit your listening preferences.

Turning the Stereo On or Off — Turn **ON VOL** clockwise until it clicks to turn on the stereo. To turn off the stereo, turn **ON VOL** counterclockwise until it clicks.

Setting the Volume — Turn **ON VOL** clockwise to increase or counterclockwise to decrease the volume.

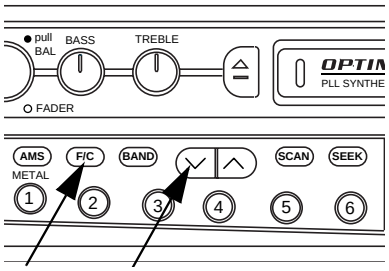
Warning: To protect your hearing, do not listen at high volume levels. Slowly increase the volume to a comfortable listening level.

Setting the Balance — While pulling out and holding **pull BAL**, rotate it to adjust the balance between the right and left speakers.**Setting the Bass** — Rotate **BASS** to increase or decrease low sounds.**Setting the Treble** — Rotate **TREBLE** to increase or decrease high sounds. **Setting the Fader** — Rotate **FADER** to adjust the balance between the front and rear speakers. If you installed only one pair of speakers, rotate **FADER** to its center position until you feel it click and the tab on **FADER** points to the left. **Tuning the Radio** — Repeatedly press ⌄ or ⌃ to tune down or up a selected band (see “Using the Radio”).

SETTING THE CLOCK

1. Turn **ON VOL** clockwise until it clicks to turn on the stereo.
2. If necessary, press **F/C** (frequency/clock) until the clock display appears.

   Note: The display normally shows the frequency.

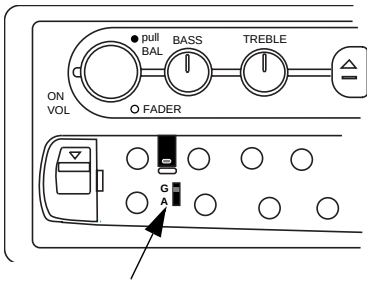


3. Press and hold down **F/C**, then repeatedly press ﹀ until the display shows the correct hour. To quickly advance the hour, press and hold down ﹀.
4. Continue holding down **F/C**, then repeatedly press ﹀ until the display shows the correct minute. To quickly advance the minute, press and hold down ﹀.
5. When the display shows the correct time, release **F/C**.

CHANGING THE DISPLAY'S COLOR

The display's backlight color can be green or amber. Follow these steps to change the display's color.

1. Turn off the stereo.
2. Remove the control panel.
3. Use a pointed object, such as a straightened paper clip, to slide the color selector switch to **G** (for green) or **A** (for amber).

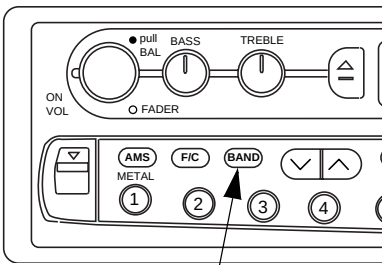


4. Replace the control panel, then turn on the stereo. The display shows the color you selected.

USING THE RADIO

PLAYING THE RADIO

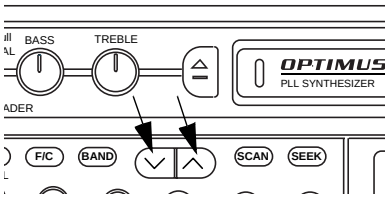
1. If the stereo is off, turn **ON VOL** clockwise until it clicks to turn it on. The radio automatically tunes to the last station selected.
2. Adjust **ON VOL** to a comfortable listening level.
3. Press **BAND** to select the desired band. **AM 1** or **AM 2** appears on the display when an AM band is selected. **FM 1**, **FM 2**, or **FM 3** appears when an FM band is selected.



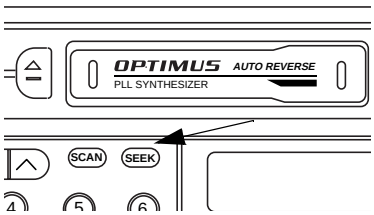
Note: Each time you press **BAND**, the radio automatically tunes to the last station selected in that band.

4. Tune to the desired station in one of the following ways.

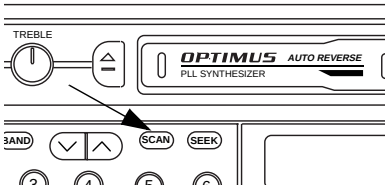
Manual Tuning: Repeatedly press ^ or v to tune up or down the selected band.



Seek Tuning: Press **SEEK** to automatically tune to the next higher station with a strong signal.



Scan Tuning: Press **SCAN**. The stereo scans the band, tuning to each strong station for about 5 seconds. The station's frequency flashes as the stereo tunes to it. Press **SCAN** again to stop scanning.



5. Adjust **ON VOL, pull BAL, BASS, TREBLE**, and **FADER** as desired.

Notes:

- **ST** appears on the display when an FM broadcast is received in stereo.
- If the stereo does not find a strong station when seeking or scanning, it searches the band again and stops on weaker stations.

- To temporarily display the time, press **F/C**. The display shows the time for 5 seconds, then returns to the frequency display. You cannot display the time during scan tuning.

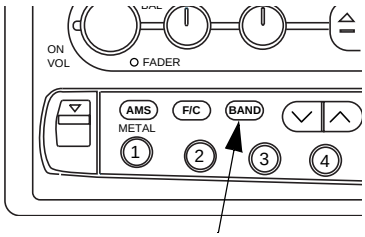
MEMORY TUNING

You can store up to 12 AM and 18 FM stations in memory. Each memory group (AM 1, AM 2, FM 1, FM 2, and FM 3) holds up to six stations.

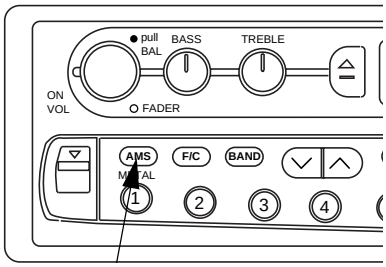
You can let the stereo search for six strong stations in a band and automatically store these into a memory group, or you can manually store stations into a memory group.

Automatically Storing Stations

1. If the stereo is off, turn **ON VOL** clockwise until it clicks to turn it on.
2. Press **BAND** until the stereo displays the band and memory group where you want to store a group of stations. For example, to store the first group of AM stations into AM 1, press **BAND** until **AM 1** appears.



3. Press and hold down **AMS** (automatic memory scan) for about 3 seconds. The stereo scans the selected band twice and stores the first six stations it finds.



The band and memory group, frequency, **CH**, and the memory location number appear on the display.

During the first scan, the stereo only searches for strong stations, and **LOC** appears on the display. During the second scan, the stereo also searches for weaker stations, and **LOC** disappears from the display.

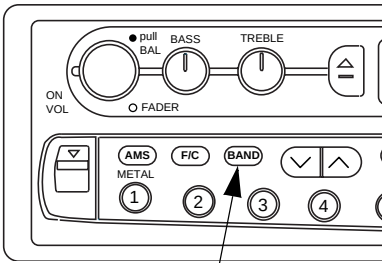
4. Briefly press **AMS** when the stereo has stored all the stations you want, or when you want to stop searching for stations.

Notes:

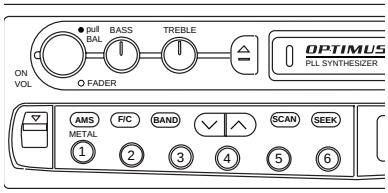
- After the stereo stores six stations or scans the band twice, it tunes to the first stored station and begins to play.
- If the stereo does not find enough stations to fill the current memory group while searching, it tunes to the first stored station and begins to play.
- If a station has a weak signal or interference, the stereo might not store it automatically. If this happens, you can manually store the station (see “Manually Storing Stations”).

Manually Storing Stations

1. If the stereo is off, turn **ON VOL** clockwise until it clicks to turn it on.
2. Press **BAND** until the stereo displays the band and memory group where you want to store a station. For example, to store AM stations into AM1, press **BAND** until **AM1** appears.



3. Use any of the tuning methods described in Step 4 of “Playing the Radio” to tune to the station you want to store.
4. Press and hold down the desired memory location button until the volume briefly mutes and the displayed memory location number changes to the number of the button you pressed. The station is now stored in that memory location.

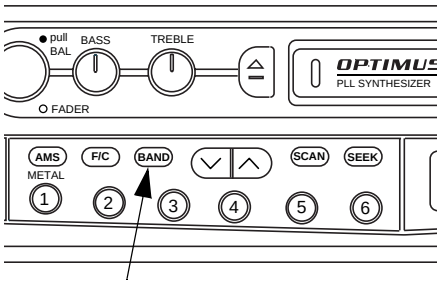


The band and memory group, the frequency, the memory location number, and **CH** appear on the display.

Note: The volume briefly mutes while the radio stores the station, but returns to normal after the station is stored.

Selecting a Stored Station

To select a stored station, press **BAND** to select the correct band and memory group. Then briefly press the desired memory location button.

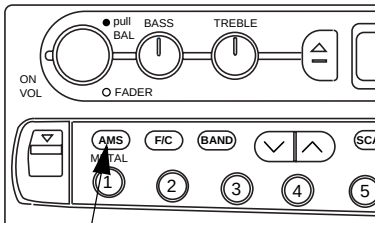


Caution: Do not hold down the memory location button. This stores the currently tuned station into that location.

Scanning Stored Stations

The stereo's automatic memory scan (AMS) scans all stored stations in both AM or all three FM memory groups, pausing for 5 seconds at each strong station.

1. Press **BAND** until the stereo displays the band (AM or FM) and memory group you want to scan.
2. To start automatic memory scan, briefly press **AMS**.



As the stereo scans each memory location in the band, the band and memory group, the frequency, and **CH** are displayed, and the memory location number flashes.

Caution: Do not hold down **AMS**. This causes the stereo to automatically search and store stations into the selected band and memory group.

3. To stop scanning when the stereo pauses at a station you want to listen to, briefly press **AMS** or the station's memory location button. The memory location number stops flashing.

   Caution: Do not hold down **AMS**. This causes the stereo to automatically search and store stations into the selected band and memory group.

   Note: If you do not press a memory location button or **AMS**, the stereo scans both AM or all three FM memory groups repeatedly.

USING THE CASSETTE PLAYER

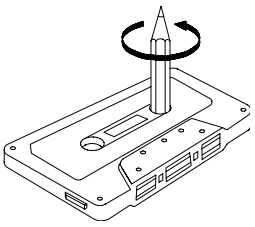
PLAYING A CASSETTE

Warning: To protect your hearing, always turn **ON VOL** to its lowest level before you begin listening to a tape.

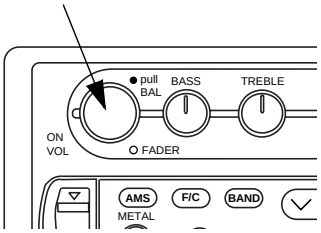
Caution: Avoid using C-120 cassette tapes. They are very thin and can easily become tangled in the tape-handling parts.

Follow these steps to play a cassette tape.

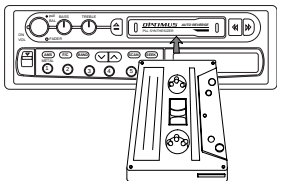
1. Take up any slack by turning the cassette's hub with your finger or a pencil. (Avoid touching the tape.)



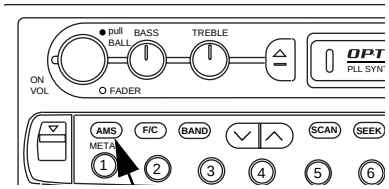
2. If the stereo is off, turn **ON VOL** clockwise until it clicks to turn it on.



3. Insert the tape into the cassette compartment with its open edge to the right and the desired side facing up. ► or ◄ appears on the display, and the tape begins to play.

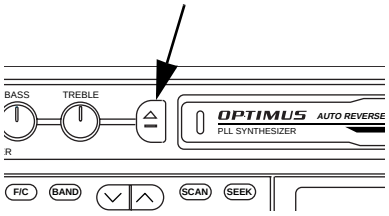


4. If you are playing a metal or CrO^2 (Type II) tape, press **METAL/1** until **MTL** appears on the display.



5. Adjust **ON VOL, pull BAL, BASS, TREBLE**, and **FADER** as desired.

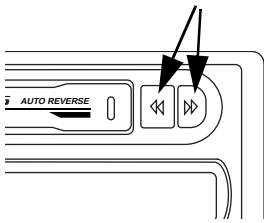
6. Press ⏏ all the way in to stop the tape and eject it. The radio plays.



Caution: We recommend you press ⏏ as soon as you finish playing a tape or before you leave your vehicle, to release the tape from the tape-handling parts. This reduces the possibility of a tape being inadvertently tangled or damaged.

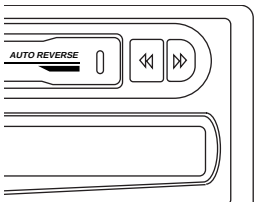
Notes:

- When the tape reaches the end, the cassette player automatically changes the tape's direction and plays the other side of the tape. Play continues until you press ⏏ .
- During play, you can switch to the other side of the cassette by pressing ⏪ and ⏩ in.



FAST-FORWARD AND REWIND

To fast-forward or rewind the current side, firmly press ⏪ or ⏩ depending on which side of the tape is playing. The button locks and the tape quickly winds. Play resumes when the end of the tape side is reached.



To stop fast-forward or rewind before the end of the tape, gently press and release the opposite button. Play continues.

Note: Fast-forward always quickly moves the tape in the same direction the tape is currently playing, and rewind always quickly moves the tape in the opposite direction.

CARE AND MAINTENANCE

Your Optimus In-Dash High-Power AM/FM Stereo Cassette with Auto-Reverse is an example of superior design and craftsmanship. The following suggestions will help you care for the stereo so you can enjoy it for years.

Keep the stereo dry. If it gets wet, wipe it dry immediately. Liquids might contain minerals that can corrode the electronic circuits.

Handle the stereo gently and carefully. Dropping it can damage circuit boards and cases and can cause the stereo to work improperly.

Keep the stereo away from dust and dirt, which can cause premature wear of parts.

Wipe the stereo with a damp cloth occasionally to keep it looking new. Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the stereo.

Modifying or tampering with the stereo's internal components can cause a malfunction and might invalidate your stereo's warranty and void your FCC authorization to operate it. If your stereo is not performing as it should, take it to your local Radio Shack store for assistance.

THE FCC WANTS YOU TO KNOW

Your stereo might cause TV or radio interference even when it is operating properly. To determine whether your stereo is causing the interference, turn off your stereo. If the interference goes away, your stereo is causing the interference. Try to eliminate the interference by:

- Moving your stereo away from the receiver
- Contacting your local Radio Shack store for help

If you cannot eliminate the interference, the FCC requires that you stop using your stereo.

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CLEANING THE TAPE-HANDLING PARTS

Clean the tape head after about every 20 hours of playing time. Insert a special head-cleaning cassette (such as Cat. No. 44-1202), and follow the cleaning cassette's directions to clean the tape head.

RESTORING TAPE TENSION AND SOUND QUALITY

After you play a cassette tape a few times, the tape might become tightly wound on the reels. This can cause playback sound quality to deteriorate.

To restore the sound quality, fast-forward the tape from the beginning to the end of one side, then completely rewind it. Then loosen the tape reels by gently tapping each side of the cassette's outer shell on a flat surface.

Caution: Be careful not to damage the cassette when tapping it. Do not touch the exposed tape or allow any sharp objects near the cassette.

REPLACING FUSES

If the stereo does not operate, you might need to replace the red power wire's fuse with the supplied spare fuse. If the clock resets or stored stations are lost when the ignition is off, you might need to replace the yellow power/memory wire's fuse with the supplied spare fuse. Check both fuses.

1. Disconnect the cable from the vehicle battery's negative (—) terminal.
2. Push together and twist the fuse holder's parts until they spring open.
3. If either fuse is blown, replace it. Use only standard $1^1/_4$-inch fast-acting fuses with the proper rating. The red power wire's fuse must be 6.0 amps, and the yellow power/memory wire's fuse must be 0.5 amps.

   Caution: The supplied spare fuses have the proper ratings. Make sure you replace a fuse only with another fuse of the same rating.

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4. Reassemble both fuse holders by pushing together and twisting the two parts back together.
5. Reconnect the cable to the vehicle battery's negative (—) terminal.

RESETTING THE STEREO

If information on the stereo's display disappears and your stereo does not work at all, you might have to reset it.

To reset your stereo, simply turn your vehicle's ignition off, wait about 3 minutes, then turn your vehicle's ignition on again.

SPECIFICATIONS

RADIO

FM (Nominal)	**AM (Nominal)**
Frequency Range	88-108 MHz	530-1710 kHz
IF Rejection	75 dB	50 dB
Image Rejection	44 dB	55 dB
Selectivity	60 dB	40 dB
Signal-to-Noise (S/N) Ratio	60 dB	50 dB
Stereo Separation	30 dB	—
Usable Sensitivity	2.5 mV (3% THD)	30 mV (20 dB S/N)

CASSETTE PLAYER

Cassette Mechanism	Auto-Reverse
Wow and Flutter	Less than 0.35% WRMS
Signal-to-Noise Ratio	48 dB
Separation	38 dB
Frequency Response (–3 dB)	50-10,000 Hz

GENERAL

Power Source	12 V DC Negative Ground
Bass Control Effects	±10 dB at 100 Hz
Treble Control Effects	±10 dB at 100 kHz
Speaker Output Impedance	4 or 8 Ohms
Output Power (With 2 Speakers)	28 Watts (14 Watts per Channel)
Output Power (With 4 Speakers)	16 Watts (4 Watts per Channel)
Chassis Size (HWD)	2 ¥ 7 ¥ $5^{15}/_{16}$ Inches (52 ¥ 178 ¥ 135 mm)
Weight	3 lbs 5 oz (1.5 kg)

Specifications are typical; individual units might vary. Specifications are subject to change and improvement without notice.

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NOTES

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RADIO SHACK LIMITED WARRANTY

This product is warranted against defects for 1 year from date of purchase from Radio Shack company-owned stores and authorized Radio Shack franchisees and dealers. Within this period, we will repair it without charge for parts and labor. Simply **bring your Radio Shack sales slip** as proof of purchase date to any Radio Shack store. Warranty does not cover transportation costs. Nor does it cover a product subjected to misuse, accidental damage, alteration or improper installation.

EXCEPT AS PROVIDED HEREIN, RADIO SHACK MAKES NO EXPRESS WARRANTIES AND ANY IMPLIED WARRANTIES ARE LIMITED IN DURATION TO THE DURATION OF THE WRITTEN LIMITED WARRANTIES CONTAINED HEREIN. Some states do not permit limitation or exclusion of implied warranties; therefore, the aforesaid limitation(s) or exclusion(s) may not apply to the purchaser.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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RADIO SHACK
A Division of Tandy Corporation
Fort Worth, Texas 76102

8A5 Printed in Hong Kong